ELSEVIER

Journal of the Mechanics and Physics of Solids
52 (2004) III–XII

JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS

www.elsevier.com/locate/jmps

CONTENTS OF VOLUME 52

Number 1

K. BHATTACHARYA and J.R. WILLIS	iii	Editorial changes
B. LIU, H. JIANG, H.T. JOHNSON and Y. HUANG	1	The influence of mechanical deformation on the electrical properties of single wall carbon nanotubes
N. LAHELLEC, F. MAZEROLLE and J.C. MICHEL	27	Second-order estimate of the macroscopic behavior of periodic hyperelastic composites: theory and experimental validation
J. DOLBOW, E. FRIED and H. JI	51	Chemically induced swelling of hydrogels
W.C. CRONE, T.W. SHIELD, A. CREUZIGER and B. HENNEMAN	85	Orientation dependence of the plastic slip near notches in ductile FCC single crystals
F. DAVÍ and R. RIZZONI	113	On twinning and domain switching in ferroelectric $Pb(Zr_{1-x}Ti_x)O_3$—part I: twins and domain walls
M. MATA and J. ALCALÁ	145	The role of friction on sharp indentation
S. SIHN and A.K. ROY	167	Modeling and prediction of bulk properties of open-cell carbon foam
S. LI, J. WANG and M.D. THOULESS	193	The effects of shear on delamination in layered materials
B. FEDELICH	215	The glide force on a dislocation in finite elasticity

Number 2

R.A. LEBENSOHN, C.N. TOMÉ and P.J. MAUDLIN	249	A selfconsistent formulation for the prediction of the anisotropic behavior of viscoplastic polycrystals with voids

S. YEFIMOV, I. GROMA and E. VAN DER GIESSEN	279	A comparison of a statistical-mechanics based plasticity model with discrete dislocation plasticity calculations
A. ACHARYA	301	Constitutive analysis of finite deformation field dislocation mechanics
A. PELED, M.B. RUBIN and J. TIROSH	317	Analysis of blank thickening in deep drawing processes using the theory of a Cosserat generalized membrane
K.P. SOLDATOS	341	Complex potential formalisms for bending of inhomogeneous monoclinic plates including transverse shear deformation
I. MONETTO and W.J. DRUGAN	359	A micromechanics-based nonlocal constitutive equation for elastic composites containing randomly oriented spheroidal heterogeneities
S. LE CORRE, D. CAILLERIE, L. ORGÉAS and D. FAVIER	395	Behavior of a net of fibers linked by viscous interactions: theory and mechanical properties
T. PARDOEN, F. HACHEZ, B. MARCHIONI, P.H. BLYTH and A.G. ATKINS	423	Mode I fracture of sheet metal
V.I. YUKALOV, A. MOURA and H. NECHAD	453	Self-similar law of energy release before materials fracture
Y. LIU and P. PONTE CASTAÑEDA	467	Second-order theory for the effective behavior and field fluctuations in viscoplastic polycrystals
C.M. LANDIS	497	Erratum to "On the fracture toughness of ferroelastic materials" J. Mech. Phys. Solids 51 (2003) 1347–1369

Number 3

N. HU and J.F. MOLINARI	499	Shear bands in dense metallic granular materials
A. HATTIANGADI and T. SIEGMUND	533	A thermomechanical cohesive zone model for bridged delamination cracks

E. PAN	567	Eshelby problem of polygonal inclusions in anisotropic piezoelectric full- and half-planes
J.Y. LI and N. RAO	591	Micromechanics of ferroelectric polymer-based electrostrictive composites
L. AFFERRANTE and M. CIAVARELLA	617	The thermoelastic Aldo contact model with frictional heating
D. OKUMURA, N. OHNO and H. NOGUCHI	641	Elastoplastic microscopic bifurcation and post-bifurcation behavior of periodic cellular solids
H.D. ESPINOSA, B.C. PROROK and B. PENG	667	Plasticity size effects in free-standing submicron polycrystalline FCC films subjected to pure tension
T. ZHU, J. LI, K. J. VAN VLIET, S. OGATA, S. YIP and S. SURESH	691	Predictive modeling of nanoindentation-induced homogeneous dislocation nucleation in copper
A. BENALLAL and D. BIGONI	725	Effects of temperature and thermo-mechanical couplings on material instabilities and strain localization of inelastic materials
	I	Announcement
	III	Index to volume 51, 2003

Number 4

L.E. SHILKROT, R.E. MILLER and W.A. CURTIN	755	Multiscale plasticity modeling: coupled atomistics and discrete dislocation mechanics
A. PANTANO, D.M. PARKS and M.C. BOYCE	789	Mechanics of deformation of single- and multi-wall carbon nanotubes
E. BURCSU, G. RAVICHANDRAN and K. BHATTACHARYA	823	Large electrostrictive actuation of barium titanate single crystals
J.J. VLASSAK	847	A model for chemical–mechanical polishing of a material surface based on contact mechanics
W. YANG and H. WANG	875	Mechanics modeling for deformation of nano-grained metals

J. WANG and P. QIAO 891 Interface crack between two shear deformable elastic layers

S.J. WU and J.F. KNOTT 907 On the statistical analysis of local fracture stresses in notched bars

V. TVERGAARD 925 Predictions of mixed mode interface crack growth using a cohesive zone model for ductile fracture

M.D. NESTOROVIĆ and N. TRIANTAFYLLIDIS 941 Onset of failure in finitely strained layered composites subjected to combined normal and shear loading

Z.P. BAŽANT 975 Erratum to "Scaling of dislocation-based strain-gradient plasticity" [Journal of the Mechanics and Physics of Solids 50 (2002) 435–448]

Number 5

P. ZHANG, H. JIANG, Y. HUANG, P.H. GEUBELLE and K.C. HWANG 977 An atomistic-based continuum theory for carbon nanotubes: analysis of fracture nucleation

J. WANG, N.R. SOTTOS and R.L. WEAVER 999 Tensile and mixed-mode strength of a thin film-substrate interface under laser induced pulse loading

M.B. RUBIN and Y. BENVENISTE 1023 A Cosserat shell model for interphases in elastic media

R. LIPTON 1053 Bounds on the distribution of extreme values for the stress in composite materials

M.A. WADEE, G.W. HUNT and M.A. PELETIER 1071 Kink band instability in layered structures

A. BANERJEE and J.W. HANCOCK 1093 The role of constraint in the fields of a crack normal to the interface between elastically and plastically mismatched solids

Y. SHINDO, M. YOSHIDA, F. NARITA and K. HORIGUCHI 1109 Electroelastic field concentrations ahead of electrodes in multilayer piezoelectric actuators: experiment and finite element simulation

B. JIANG and G.J. WENG 1125 A generalized self-consistent polycrystal model for the yield strength of nanocrystalline materials

H.-T. WANG and W. YANG 1151 Constitutive modeling for nanocrystalline metals based on cooperative grain boundary mechanisms

Y. LIU and P.P. CASTAÑEDA 1175 Homogenization estimates for the average behavior and field fluctuations in cubic and hexagonal viscoplastic polycrystals

Number 6

A. ARSENLIS, D.M. PARKS, R. BECKER and V.V. BULATOV 1213 On the evolution of crystallographic dislocation density in non-homogeneously deforming crystals

M. CIAVARELLA, G. MUROLO, G. DEMELIO and J.R. BARBER 1247 Elastic contact stiffness and contact resistance for the Weierstrass profile

G. CARBONE and L. MANGIALARDI 1267 Adhesion and friction of an elastic half-space in contact with a slightly wavy rigid surface

A.F. BOWER and E. WININGER 1289 A two-dimensional finite element method for simulating the constitutive response and microstructure of polycrystals during high temperature plastic deformation

M. SIEGEL, M.J. MIKSIS and P.W. VOORHEES 1319 Evolution of material voids for highly anisotropic surface energy

P. GANGULY and W.J. POOLE 1355 Influence of reinforcement arrangement on the local reinforcement stresses in composite materials

P. GUDMUNDSON 1379 A unified treatment of strain gradient plasticity

M. ADDA-BEDIA 1407 Brittle fracture dynamics with arbitrary paths. II. Dynamic crack branching under general antiplane loading

L. TRUSKINOVSKY and A. VAINCHTEIN 1421 The origin of nucleation peak in transformational plasticity

Number 7

L.I. SLEPYAN and M.V. AYZENBERG-STEPANENKO	1447	Localized transition waves in bistable-bond lattices
D. LIU, N.A. FLECK and M.P.F. SUTCLIFFE	1481	Compressive strength of fibre composites with random fibre waviness
R.E. MILLER and A. ACHARYA	1507	A stress-gradient based criterion for dislocation nucleation in crystals
L. AFFERRANTE and M. CIAVARELLA	1527	Instability of thermoelastic contact for two half-planes sliding out-of-plane with contact resistance and frictional heating
L.C. BRINSON, I. SCHMIDT and R. LAMMERING	1549	Stress-induced transformation behavior of a polycrystalline NiTi shape memory alloy: micro and macromechanical investigations via in situ optical microscopy
C. GONZÁLEZ, J. SEGURADO and J. LLORCA	1573	Numerical simulation of elasto-plastic deformation of composites: evolution of stress microfields and implications for homogenization models
K. GARIKIPATI, E.M. ARRUDA, K. GROSH, H. NARAYANAN and S. CALVE	1595	A continuum treatment of growth in biological tissue: the coupling of mass transport and mechanics
G. CHAGNON, E. VERRON, L. GORNET, G. MARCKMANN and P. CHARRIER	1627	On the relevance of Continuum Damage Mechanics as applied to the Mullins effect in elastomers
Y. CHARLES, D. VANDEMBROUCQ, F. HILD and S. ROUX	1651	Material-independent crack arrest statistics
E. FRIED and S. SELLERS	1671	Free-energy density functions for nematic elastomers

Number 8

C.L. MARTIN	1691	Elasticity, fracture and yielding of cold compacted metal powders

J.Y. LI and D. LIU	1719	On ferroelectric crystals with engineered domain configurations
D. SHERMAN and I. BE'ERY	1743	From crack deflection to lattice vibrations—macro to atomistic examination of dynamic cleavage fracture
R.L.J.M. UBACHS, P.J.G. SCHREURS and M.G.D. GEERS	1763	A nonlocal diffuse interface model for microstructure evolution of tin–lead solder
A. ACHARYA, H. TANG, S. SAIGAL and J. L. BASSANI	1793	On boundary conditions and plastic strain-gradient discontinuity in lower-order gradient plasticity
M. HUANG	1827	Perturbation approach to elastic constitutive relations of polycrystals
N.A. FLECK and J.R. WILLIS	1855	Bounds and estimates for the effect of strain gradients upon the effective plastic properties of an isotropic two-phase composite
D.R. CHICHILI, K.T. RAMESH and K.J. HEMKER	1889	Adiabatic shear localization in α-titanium: experiments, modeling and microstructural evolution
J.-Y. KIM, A. BALTAZAR and S.I. ROKHLIN	1911	Ultrasonic assessment of rough surface contact between solids from elastoplastic loading–unloading hysteresis cycle

Number 9

J. DIAO, K. GALL and M.L. DUNN	1935	Atomistic simulation of the structure and elastic properties of gold nanowires
B. JI and H. GAO	1963	Mechanical properties of nanostructure of biological materials
M. HUANG and Z. LI	1991	Dislocation emission criterion from a blunt crack tip
M.R. BEGLEY and T.J. MACKIN	2005	Spherical indentation of freestanding circular thin films in the membrane regime
N.-S. LIOU, M. OKADA and V. PRAKASH	2025	Formation of molten metal films during metal-on-metal slip under extreme interfacial conditions

P.W. DONDL and J. ZIMMER	2057	Modeling and simulation of martensitic phase transitions with a triple point
X.-F. LI and K.Y. LEE	2079	Effects of electric field on crack growth for a penny-shaped dielectric crack in a piezoelectric layer
Y. ZHANG and M.L. DUNN	2101	Geometric and material nonlinearity during the deformation of micron-scale thin-film bilayers subject to thermal loading
N. TRIANTAFYLLIDIS and J.R. WALDENMYER	2127	Onset of necking in electro-magnetically formed rings
V. TVERGAARD	2149	On fatigue crack growth in ductile materials by crack–tip blunting
I. COHEN	2167	Simple algebraic approximations for the effective elastic moduli of cubic arrays of spheres
S. DAS	2185	Erratum to "Dynamic fracture mechanics in the study of the earthquake rupturing process: theory and observation" [Journal of the Mechanics and Physics of Solids 2003; 51 (11–12): 1939–1955]

Number 10

H.J. QI and M.C. BOYCE	2187	Constitutive model for stretch-induced softening of the stress–stretch behavior of elastomeric materials
M. FRALDI and S.C. COWIN	2207	Inhomogeneous elastostatic problem solutions constructed from stress-associated homogeneous solutions
M. KHOJASTEHPOUR and K. HASHIGUCHI	2235	Axisymmetric bifurcation analysis in soils by the tangential-subloading surface model
M. LAZAR and G.A. MAUGIN	2263	Defects in gradient micropolar elasticity —I: screw dislocation
M. LAZAR and G.A. MAUGIN	2285	Defects in gradient micropolar elasticity —II: edge dislocation and wedge disclination

S. FEDERICO, A. GRILLO and W. HERZOG 2309 A transversely isotropic composite with a statistical distribution of spheroidal inclusions: a geometrical approach to overall properties

M. WANG, K.M. LIECHTI, J.M. WHITE and R.M. WINTER 2329 Nanoindentation of polymeric thin films with an interfacial force microscope

C.P. BUCKLEY, P.J. DOOLING, J. HARDING and C. RUIZ 2355 Deformation of thermosetting resins at impact rates of strain. Part 2: constitutive model with rejuvenation

L.P. EVERS, W.A.M. BREKELMANS and M.G.D. GEERS 2379 Non-local crystal plasticity model with intrinsic SSD and GND effects

S. SEREBRINSKY, E.A. CARTER and M. ORTIZ 2403 A quantum-mechanically informed continuum model of hydrogen embrittlement

Number 11

C.F. NIORDSON and P. REDANZ 2431 Size-effects in plane strain sheet-necking

L.B. FREUND and Y. LIN 2455 The role of binder mobility in spontaneous adhesive contact and implications for cell adhesion

L. WANG and S.I. ROKHLIN 2473 Recursive geometric integrators for wave propagation in a functionally graded multilayered elastic medium

E.B. TADMOR and N. BERNSTEIN 2507 A first-principles measure for the twinnability of FCC metals

O. KRESSE and L. TRUSKINOVSKY 2521 Lattice friction for crystalline defects: from dislocations to cracks

M.E. GURTIN 2545 A gradient theory of small-deformation isotropic plasticity that accounts for the Burgers vector and for dissipation due to plastic spin

M. LYON and B.L. ADAMS 2569 Gradient-based non-linear microstructure design

Y.J. WEI and L. ANAND 2587 Grain-boundary sliding and separation in polycrystalline metals: application to nanocrystalline fcc metals

C. MIEHE, S. GÖKTEPE and F. LULEI 2617 A micro-macro approach to rubber-like materials—Part I: the non-affine microsphere model of rubber elasticity

Q.-C. HE and Y. BENVENISTE 2661 Exactly solvable spherically anisotropic thermoelastic microstructures

Number 12

A. GAJO, D. BIGONI and D.M. WOOD 2683 Multiple shear band development and related instabilities in granular materials

C. MIEHE, M. LAMBRECHT and E. GÜRSES 2725 Analysis of material instabilities in inelastic solids by incremental energy minimization and relaxation methods: evolving deformation microstructures in finite plasticity

K. MINNAAR and M. ZHOU 2771 A novel technique for time-resolved detection and tracking of interfacial and matrix fracture in layered materials

S.L. LOPATNIKOV and A.H.-D. CHENG 2801 Macroscopic Lagrangian formulation of poroelasticity with porosity dynamics

H. TANG, Y.S. CHOI, A. ACHARYA and S. SAIGAL 2841 Effects of lattice incompatibility-induced hardening on the fracture behavior of ductile single crystals

S.V. KANKANALA and N. TRIANTAFYLLIDIS 2869 On finitely strained magnetorheological elastomers

K. GARIKIPATI, E.M. ARRUDA, K. GROSH, H. NARAYANAN and S. CALVE 2909 Erratum: "A continuum treatment of growth in biological tissue: the coupling of mass transport and mechanics" [Journal of Mechanics and Physics of Solids 52 (2004) 1595]

I Volume Contents and Author Index for Volume 52